INPLASY

Comparison of visual quality and stereoscopic vision after bilateral cataract surgery with different combinations of intraocular lenses

INPLASY202580022

doi: 10.37766/inplasy2025.8.0022

Received: 7 August 2025

Published: 7 August 2025

Zhang, GH; Yin, L.

Corresponding author:
Yin Li

853560791@qq.com

Author Affiliation:
University of Electronic Science and Technology of China· Sichuan Provincial People's Hospital.

ADMINISTRATIVE INFORMATION

Support - Natural Science Foundation of China under Grant (No. 82171026);Research Fund of Sichuan Academy of Medical Sciences and Sichuan Provincial People's Hospital (24QNPY002).

Review Stage at time of this submission - Data extraction.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202580022

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 7 August 2025 and was last updated on 7 August 2025.

INTRODUCTION

Review question / Objective To compare the visual quality and stereoscopic vision of different intraocular lens combinations after bilateral cataract surgery.

Condition being studied With the advancement of cataract surgery techniques and the development of intraocular lens, people's requirements after cataract surgery are no longer merely to improve vision, but to achieve better postoperative visual quality, such as better near vision, intermediate vision, contrast sensitivity, stereoscopic vision, etc. The most important aspect in improving visual quality lies in the intraocular lens, including the implantation of functional intraocular lens and the design of different intraocular lens implants for both eyes. Therefore, we would like to compare the visual quality and stereoscopic vision effects of different intraocular lens combinations after bilateral cataract surgery based on the existing literature reports.

METHODS

Search strategy ((((("Cataract"[Mesh]) OR (((Cataract[Title/Abstract]) OR (Cataracts[Title/Abstract])) OR (Pseudoaphakia[Title/Abstract]))) OR ((Phacoemulsification[Title/Abstract]) OR ("Cataract Extraction"[Mesh])))
AND ((((("Lenses, Intraocular"[Mesh]) OR ("Lens Implantation, Intraocular"[Mesh])) OR (((lens[Title/Abstract]) OR (Lenses[Title/Abstract])) OR (Pseudophakia[Title/Abstract]))) OR ((((((((((((((((IOL[Title/Abstract]) OR (monofocal[Title/Abstract])) OR (mono-focal[Title/Abstract])) OR (Bifocal[Title/Abstract])) OR (Bi-focal[Title/Abstract])) OR (Multifocal[Title/Abstract])) OR (Multi-focal[Title/Abstract])) OR (Trifocal[Title/Abstract])) OR (Tri-focal[Title/Abstract])) OR (extended depth of focus[Title/Abstract])) OR (EDOF[Title/Abstract])) OR (extended range of vision[Title/Abstract])) OR (ERV[Title/Abstract])) OR (accommodating[Title/Abstract])) OR (accommodative[Title/Abstract])) OR

(diffractive[Title/Abstract])) OR (refractive[Title/Abstract])))
AND ((("Randomized Controlled Trial" [Publication Type]) OR ("Random Allocation"[Mesh])) OR ((((Randomized[Title/Abstract]) OR (Randomly[Title/Abstract])) OR (Random[Title/Abstract])) OR (Randomization[Title/Abstract]))).

Participant or population Patients diagnosed with bilateral cataracts.

Intervention Bilateral cataract surgery and bilateral intraocular lens implantation.

Comparator Bilateral eyes can be implanted with the same intraocular lenses, or with different intraocular lenses.

Study designs to be included Randomized controlled trial(RCT).

Eligibility criteria
Inclusion Criteria:
(1) Disease: Cataract ;
(2) Intervention: Cataract extraction and intraocular lens implantation;
(3) Outcome indicators: Stereopsis, visual acuity (distance, intermediate, near), visual quality, contrast sensitivity (CS), spectacle independence rate, wavefront aberration, optical interference phenomena/adverse visual phenomena (glare, halo, jumping vision, starburst), questionnaires;
(4) Study type: RCT.
Exclusion Criteria:
(1) Duplicated published literature;
(2) Traumatic or congenital cataract, corneal diseases, lens dislocation, glaucoma, uveitis, proliferative diabetic retinopathy, retinal detachment, macular disease, optic nerve disease, history of previous fundus or refractive surgery;
(3) Literature without a control group;
(4) Animal experiments;
(5) Nursing-related literature;
(6) Reviews, experience summaries, case reports, conference proceedings, meta-analyses, etc.;
(7) Non-RCT studies;
(8) Literature failing to provide data suitable for Meta-analysis; (Meeting two or more items?)
(9) Literature without specified IOL types;
(10) Literature where the original text cannot be found.

Information sources Pubmed, embase, cochrane, CNKI, WanFang, vip, sinomed databases.

Main outcome(s) Stereoscopic vision、visual acuity (distance, intermediate, near)、visual quality、contrast sensitivity (CS)、spectacle independence rate、optical interference phenomena/adverse visual phenomena、questionnaires.

Quality assessment / Risk of bias analysis Cochrane Risk of Bias Tool、Jadad Scale.

Strategy of data synthesis Mesh meta-analysis.

Subgroup analysis No, Mesh meta-analysis, subgroup analysis could not be performed.

Sensitivity analysis No, Mesh meta-analysis, subgroup analysis could not be performed.

Country(ies) involved China(University of Electronic Science and Technology of China·Sichuan Provincial People's Hospital).

Keywords cataracts, cataract surgery,meta analysis,stereoscopic vision,visual quality,contrast sensitivity (CS),adverse visual phenomena.

Contributions of each author
Author 1 - Zhang Guanghong.
Author 2 - Yin Li.